



ARL is an Authority on Nutrition and the Science of Balancing Body Chemistry Through Hair Tissue Mineral Analysis!

Hair Tissue Mineral Analysis



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Mineral Patterns – Calcium/Phosphorus Ratio

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Autonomic Balance and the Calcium/Phosphorus Ratio

The calcium/phosphorus ratio on a hair mineral analysis is an indicator of an individual's autonomic state. A calcium/phosphorus ratio less than 2.5 indicates a sympathetic state, while a ratio greater than 2.5:1 indicates a parasympathetic state. The autonomic state is important as it is closely related to the activity of the adrenal and thyroid glands. A physician who studied the calcium/phosphorus ratio extensively was Melvin Page, DDS. (*Page, M., Degeneration-Regeneration, Nutritional Development, St. Petersburg, FL 1949, 1980.*)

The state of the autonomic nervous system is not the same as another important concept, sympathetic or parasympathetic dominance. These are separate ideas.

A third concept is important. This is whether a person is *autonomic dominant* or *oxidation dominant*.

Sympathetic And Parasympathetic

The *sympathetic* nervous system is also called the fight-or-flight system. It activates the brain and the muscles and is the 'speed-up' system. It causes expenditure of energy and is catabolic. The *parasympathetic* system is conserving, nurturing, nourishing and restful. It activates the digestive organs. It is anabolic and regenerates the body.

The body balances these two systems and the minerals associated with them. Animals are quite good at this. Healthy cats or dogs run fast and fight hard, but are equally comfortable spending the afternoon sleeping. Humans, however, have more difficulty balancing the autonomic system. Many people compulsively fight or run all the time. Others are in a *give-up* mode where they will no longer fight for anything. They are often depressed and feel like victims.

Causes of autonomic imbalance include chemical imbalances one is born with, poor diet, use of stimulants, negative thinking, structural imbalances, physical or emotional traumas and exposure to toxic metals and chemicals that affect the hypothalamus and pituitary gland.

Phosphorus

Phosphorus is fiery and explosive. Phosphorus must be stored under water. Exposed to the air, it spontaneously catches fire. TNT contains phosphorus. Phosphors make televisions and computer monitors light up. Phosphorus is the key element in ATP, adenosine triphosphate, the high energy molecule that provides energy for our bodies.

Dr. Paul Eck found that either high or low phosphorus on a hair analysis indicates impaired protein synthesis. All proteins contain phosphorus. A high hair phosphorus, especially in relation to calcium, is an indicator of a sympathetic state. This is catabolic, associated with excessive protein breakdown.

In an exhaustion stage of stress, the body becomes parasympathetic because the sympathetic system is depleted. Digestion, absorption and utilization of protein are impaired due to zinc deficiency, copper toxicity, improper gut flora and other problems. This produces a low hair phosphorus, especially in relation to calcium. This is more serious than a high hair phosphorus.

Calcium

Calcium is cold, hard and static. It is the key ingredient in concrete. Calcium gives rigidity to our bones and teeth. Where phosphorus is energy in motion, calcium is structure.

Dr. Hans Selye, founder of the stress theory of disease, discovered that sympathetic nervous activation lowers tissue calcium and magnesium levels. This puts the body in a hyper alert state, increases blood pressure by constricting the arteries and enhances nervous system irritability. This prepares the body for fighting or running.

The opposite occurs in the exhaustion stage of stress. The sympathetic system is depleted. Thyroid and adrenal activity diminish and tissue calcium begins to rise. It can become very elevated in a hair sample, indicating a parasympathetic state. The ideal ratio of hair calcium to phosphorus is 2.5:1. *Hair samples must not be washed at the laboratory to obtain accurate readings.*

Autonomic Dominance

Autonomic dominance refers to which branch of the autonomic system one uses most of the time. Almost everyone is sympathetic dominant. When it is mild, one is forward looking, optimistic, active and energetic. Symptoms of excessive sympathetic dominance include compulsion, running around excessively, overworking, excessive thinking, fearfulness, anxiety, worry or anger. One may talk, think and work fast. One does not spend enough time in a parasympathetic state to rebuild the body, so it eventually becomes depleted of nutrients or "burns out". A hair high sodium/potassium ratio indicates sympathetic dominance. Today even young children are burned out due to stress and poor diets.

Healthy parasympathetic dominant individuals are rare. They love to relax, do not react to stress and may rest all day, not because they are tired but because they are content. They live in the present moment and are at peace within. A healthy parasympathetic dominant loves eating, has a great appetite and great digestion because the parasympathetic system activates digestion. They are rare due to the stress of modern living. Also, toxic metals and chemicals in the food, air and water disturb the proper functioning of the autonomic nervous system.

Much more common is emotionally caused unhealthy parasympathetic dominance. These people have given up on life and will not fight for anything. They may advocate peace, but they are not at peace. They may sit around or they may be active, but are in a give up mode. Their hair analysis will reveal a high calcium/phosphorus ratio, slow oxidation, a low sodium/potassium ratio, or perhaps a four-low-electrolyte mineral pattern.

One's autonomic dominance and autonomic state may be different. Many patients are sympathetic dominant, but the body is in a parasympathetic state. This is called a *burned out sympathetic dominant*. It is indicated on a hair analysis by a high calcium/phosphorus ratio (parasympathetic state) and a high sodium/potassium ratio (sympathetic dominance). It is a common slow oxidizer pattern.

Autonomic Or Oxidation Dominance

In some people, an *autonomic* imbalance is most important. In others, an *oxidation rate* imbalance is most important. Dominance of an autonomic imbalance can be due to toxic metals in the hypothalamus or pituitary gland that affect the hormone output of the major glands. Another common cause of autonomic dominance are neuroses, fears, worries, resentments, prejudices or mental rigidity. Such people are always fighting or flighting or may go into a give-up state.

Those with dominance of an oxidation rate imbalance have fewer emotional issues and less toxic metals in the pituitary. Instead, they have toxic metals or nutrient deficiencies primarily affecting nutrient transport, metabolism and cellular respiration in the mitochondria. Thus the body's ability to oxidize or burn food is most affected.

While important, the distinction can become vague. For example, impaired cell permeability due to chemical imbalances may cause the body to over secrete thyroid or adrenal hormones to compensate. This in turn upsets the autonomic nervous system. Continued for years, it may give rise to a personality disorder. Separating out all these factors can be difficult.

The best approach is to correct every level of functioning. This means supporting glandular activity and cellular respiration, replenishing minerals, eliminating toxic metals, paying attention to diet and lifestyle and using other therapies to clear structural and emotional blocks. Nutritional balancing programs from Analytical Research Labs incorporate dietary, lifestyle and supplement recommendations to assist in chemically balancing the body.

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